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| APPLICATION NO.                | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--------------------------------|-------------|----------------------|---------------------|------------------|
| 10/587,208                     | 07/25/2006  | Yasuhiro Ono         | Q96004              | 7161             |
| 23373                          | 7590        | 01/20/2010           | EXAMINER            |                  |
| SUGHRUE MION, PLLC             |             |                      | BROWNE, DAVID       |                  |
| 2100 PENNSYLVANIA AVENUE, N.W. |             |                      |                     |                  |
| SUITE 800                      |             |                      | ART UNIT            | PAPER NUMBER     |
| WASHINGTON, DC 20037           |             |                      | 1616                |                  |
|                                |             |                      |                     |                  |
|                                |             |                      | NOTIFICATION DATE   | DELIVERY MODE    |
|                                |             |                      | 01/20/2010          | ELECTRONIC       |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

sughrue@sughrue.com  
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|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/587,208             | ONO, YASUHARU       |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | DAVID M. BROWNE        | 1616                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 25 July 2006.  
 2a) This action is **FINAL**.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1,3 and 5-9 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1,3 and 5-9 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

|  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____ .                                    |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>July 25, 2006</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application |
|  | 6) <input type="checkbox"/> Other: _____ .                        |

## DETAILED ACTION

**Claims 1, 3, and 5-9 are pending; claims 2 and 4 are cancelled.**

### ***Priority***

Applicant's claim for the benefit of prior-filed International application PCT/JP04/00638, filed January 26, 2004 under 35 U.S.C. 365(c) is acknowledged.

### ***Specification***

The abstract of the disclosure is objected to because the abstract should be limited to a single paragraph within the range of 50 to 150 words.

Correction is required. See MPEP § 608.01(b).

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 1 and 6-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Wong et al. (U.S. Patent No. 6,306,371).**

Wong et al. disclose a silver-based inorganic antibacterial agent dispersion comprising: a) silver-based inorganic antibacterial agent; b) discoloration inhibitor; c) thickener; d) dispersant; and e) dispersion medium; wherein the silver-based inorganic antibacterial agent and the thickener are 5% and 0.1-10%, respectively, by mass, of the dispersion (Col. 1, Ins. 9-10, 65-67; Col. 2, Ins. 1-8, 16-17, 21, 30-31, 43-44, 55-60, 65-67; Col. 3, Ins. 4, 9, 47-56; Col. 4, Ins. 3-12, 28-37; Col. 5, Ins. 15-24, 29-30; Col. 6, Ins.

1-25). The thickener is a polysaccharide- and/or cellulose-based thickener (Col. 4, Ins. 3-11); and the dispersant is an anionic or nonionic surfactant (Col. 2, Ins. 65-67; Col. 3, Ins. 1-20). The dispersion further comprises a binder resin (Col. 3, Ins. 47-57; Col. 4, Ins. 11-12, 28-54; Col. 5, Ins. 25-30). Wong *et al.* further disclose a product processed using the silver-based inorganic antibacterial agent dispersion (Col. 5, Ins. 15-24).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

**I. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wong *et al.* (U.S. Patent No. 6,306,371), in view of Pratt *et al.* (U.S. Patent No. 4,849,223).**

#### ***I. Applicant Claims***

Applicant claims a silver-based inorganic antibacterial agent dispersion comprising: a) silver-based inorganic antibacterial agent; b) discoloration inhibitor; c)

thickener; d) dispersant; e) fine particulate compound with average particle size 1-100 nm; and f) dispersion medium; wherein the silver-based inorganic antibacterial agent and the thickener are 5% and 0.1-10%, respectively, by mass, of the dispersion.

***I. Determination of the Scope and Content of the Prior Art (MPEP §2141.01)***

Wong *et al.* disclose a silver-based inorganic antibacterial agent dispersion comprising: a) silver-based inorganic antibacterial agent; b) discoloration inhibitor; c) thickener; d) dispersant; and e) dispersion medium; wherein the silver-based inorganic antibacterial agent and the thickener are 5% and 0.1-10%, respectively, by mass, of the dispersion (Col. 1, Ins. 9-10, 65-67; Col. 2, Ins. 1-8, 16-17, 21, 30-31, 43-44, 55-60, 65-67; Col. 3, Ins. 4, 9, 47-56; Col. 4, Ins. 3-12, 28-37; Col. 5, Ins. 15-24, 29-30; Col. 6, Ins. 1-25).

Pratt *et al.* disclose a silver-based inorganic antibacterial agent dispersion comprising a fine particulate compound with average particle size less than 5 microns (Col. 2, Ins. 20-26, 39-41, 51, 57-65; Col. 3, Ins. 42-49; Col. 4, Ins. 33-38, 47, 54-56; Col. 5, Ins. 49-56; Col. 8, Ins. 25-32).

***I. Ascertainment of the Difference Between the Scope of the Prior Art and the Claims (MPEP §2141.012)***

Wong *et al.* disclose a silver-based inorganic antibacterial agent dispersion comprising: a) silver-based inorganic antibacterial agent; b) discoloration inhibitor; c) thickener; d) dispersant; and e) dispersion medium; wherein the silver-based inorganic antibacterial agent and the thickener are 5% and 0.1-10%, respectively, by mass, of the dispersion. Wong *et al.*, however, do not explicitly disclose that the dispersion

advantageously contains an additional fine particulate compound with average particle size less than 5 microns. This deficiency is cured by Pratt *et al.*

***I. Finding of Prima Facie Obviousness Rational and Motivation***

***(MPEP §2142-2143)***

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the present invention to combine the teachings of Wong *et al.* and Pratt *et al.* to arrive at applicant's invention. Certain resins and polymers are known to mask or destroy the antimicrobial and bactericidal effect of silver or a silver-based inorganic compound (Pratt, Col. 1, Ins. 50-53). Since Pratt *et al.* disclose that addition of a fine particulate compound, such as titanium dioxide in the nanomolar range of particle size, enhances and sustains the antimicrobial effect of silver or silver-based inorganic compounds when incorporated in certain resins or polymers, without producing any substantial adverse reactions (Col. 2, Ins. 20-32, 57-63), one of ordinary skill in the art would be motivated to incorporate an additional particulate compound, such as nanomolar titanium dioxide, into the silver-based inorganic antibacterial agent dispersion, with the reasonable expectation that said additional particulate compound will successfully enhance the antibacterial effect of the silver or silver-based compound without producing any adverse reactions when administered to or contacted with a living system or tissue.

In light of the forgoing discussion, the Examiner concludes that the subject matter defined by the instant claims would have been obvious within the meaning of 35 USC 103(a).

From the teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, the invention as a whole was *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

**II. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wong et al.(U.S. Patent No. 6,306,371), in view of Niira, deceased et al. (U.S. Patent No. 4,938,955).**

***II. Applicant Claims***

Applicant claims a silver-based inorganic antibacterial agent dispersion comprising: a) silver-based inorganic antibacterial agent; b) discoloration inhibitor; c) thickener; d) dispersant; and e) dispersion medium; wherein the silver-based inorganic antibacterial agent and the thickener are 5% and 0.1-10%, respectively, by mass, of the dispersion. The discoloration inhibitor is an imidazole series compound and/or a benzotriazole series compound.

***II. Determination of the Scope and Content of the Prior Art (MPEP §2141.01)***

Wong et al. disclose a silver-based inorganic antibacterial agent dispersion comprising: a) silver-based inorganic antibacterial agent; b) discoloration inhibitor; c) thickener; d) dispersant; and e) dispersion medium; wherein the silver-based inorganic antibacterial agent and the thickener are 5% and 0.1-10%, respectively, by mass, of the dispersion (Col. 1, Ins. 9-10, 65-67; Col. 2, Ins. 1-8, 16-17, 21, 30-31, 43-44, 55-60, 65-

67; Col. 3, Ins. 4, 9, 47-56; Col. 4, Ins. 3-12, 28-37; Col. 5, Ins. 15-24, 29-30; Col. 6, Ins. 1-25).

Niira, deceased *et al.* disclose a silver-based inorganic antibacterial agent resin composition comprising a discoloration inhibitor; wherein the discoloration inhibitor is a benzotriazole series compound (Col. 1, Ins. 8-10, 54-57, 63-67; Col. 2, Ins. 62-66; Col. 4, Ins. 4-28; Col. 5, Ins. 21-41, 48-49).

***II. Ascertainment of the Difference Between the Scope of the Prior Art and the Claims (MPEP §2141.012)***

Wong *et al.* disclose a silver-based inorganic antibacterial agent dispersion comprising: a) silver-based inorganic antibacterial agent; b) discoloration inhibitor; c) thickener; d) dispersant; and e) dispersion medium; wherein the silver-based inorganic antibacterial agent and the thickener are 5% and 0.1-10%, respectively, by mass, of the dispersion. Wong *et al.*, however, do not explicitly disclose that the discoloration inhibitor is specifically a benzotriazole series compound. This deficiency is cured by Niira, deceased *et al.*

***II. Finding of Prima Facie Obviousness Rational and Motivation (MPEP §2142-2143)***

It would have been *prima facie* obvious for one of ordinary skill in the art at the time of the present invention to combine the teachings of Wong *et al.* and Niira, deceased *et al.* to arrive at applicant's invention. It is well known in the art that silver-based compounds can react with oxygen, UV light and other environmental stimuli to cause discoloration of antibacterial compositions in which they are incorporated,

particularly those that also contain an anionic surfactant, substantially diminishing the attractiveness and acceptability of the product to consumers (Wong *et al.*, Col. 1, Ins. 40-49; Niira, deceased *et al.*, Col. 1, Ins. 42-49). One of ordinary skill in the art, therefore, would be motivated to incorporate a benzotriazole series compound, a UV absorbant discoloration inhibitor, into the silver-based inorganic antibacterial agent dispersion, with the reasonable expectation that inclusion of the benzotriazole series compound would successfully attenuate or prevent environmentally-induced discoloration of the dispersion and products made from the dispersion.

In light of the forgoing discussion, the Examiner concludes that the subject matter defined by the instant claims would have been obvious within the meaning of 35 USC 103(a).

From the teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, the invention as a whole was *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

### ***Inquires***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID M. BROWE whose telephone number is 571-270-1320. The examiner can normally be reached on Monday-Friday 7:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann R. Richter can be reached on 571-272-0646. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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